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■

GREAT LAKES LOAD LINES

Notice of Proposed Rule Making

DEPARTMENT OF TRANSPORTATION

Coast Guard

[46 CFR Parts 42, 45]

[CGD 73-49P]

GREAT LAKES LOAD LINES

Notice of Proposed Rule Making

The Coast Guard is considering amending the Great Lakes Load Line regulations to adopt new provisions for the calculations of freeboards and additional conditions of assignment of freeboards and loadlines.

Written comments. Interested persons are invited to participate in this rule making by submitting written data, views or arguments to the Eexcutive Secretary, Marine Safety Council (GCMC/82), 400 Seventh Street SW., Washington, DC 20590 (phone 202—426-1477). Written comments should include the docket number of this notice, the name and address of the person submitting the comments, and the specific section of the proposal to which each comment is addressed.

Closing date for comments. All communications received on or before April 15, 1973, will be fully considered before final action is taken on this proposal. This proposal may be changed in the light of comments received. Copies of comments received will be available for examination in Room 8234. Copies of comments will be furnished interested persons upon request to U.S. Coast Guard (GCMC/82) and payment of the fees prescribed in 49 CFR 7.81.

Drafts of Great Lakes vessels were allowed to be increased during World War II and also during the Korean emergency. After each emergency, the drafts reverted to the standard drafts allocated by the original 1935 Load Line Regulations. The experience gained by these drafts during the two short periods provoked interest in revising the 1935 Load Line Regulations. However, there were a number of questions left unsolved in the minds of the Administrations of Canada and the United States.

Accordingly, committees were formed under the auspices of the Society of Naval Architects to maintain research on Great Lakes waves and weather conditions and to monitor stresses on one of the large Great Lakes bulk carriers. The results of both the wave research and the ship strength research were reported in a combined symposium of the Society of Naval Architects held in Ottawa in July 1971.

While this research experience was still underway during the mid-1960's, Coast Guard and the Board of Steamship Inspection in Canada formed the Canada/United States Joint Technical Committee, composed of ship owners, ship builders, classification societies' representatives and Government representatives from both the United States and Canada, which undertook to make recommendations for changes in the regulations.

The first regulatory accomplishment of this Joint Technical Committee came in 1969 with the adoption of a new freeboard table extending the tabular freeboard limits to 1,000 feet, for the construction of longer vessels, which was made possible by the new 1,000-foot lock at Sault Ste. Marie, Mich.

Later the winter freeboard correction was changed for vessels for superior construction. In the meantime, the Committee, working toward new regulations, continued its initial approach of attempting to use the 1966 International Load Line Conventions as a reference and foundation for modifying the old Great Lakes Load Line rules.

It was recognized early in the deliberations of the Joint Technical Committee that the matter of strength was important at all drafts and that the idea of greater stressing of a ship is not necessarily coupled with deeper loading. Excessive stress may occur in a loading condition other than maximum draft and therefore all loading conditions must be carefully considered.

The working papers of the 1966 Convention provided an excellent foundation. In particular one proposal by the Netherlands to examine vessels at different speeds in seaways of several different heights to determine the necessary "deck height" for a uniform percentage of water on deck was found to be an excellent starting point for the work of the Great Lakes Technical Committee. Accordingly, the research on Great Lakes waves in the mid-1960's was used to examine the Great Lakes type vessels with high block coefficients. The proposed freeboard requirements are based partially on this examination. It was found that the requirements of the old rule for freeboards of vessels up to about 550 feet in length were quite adequate and should not be reduced without increasing the deck-fitting weather tightness. However, the calculations indicate that longer vessels can achieve similar levels of deck safety with smaller freeboards.

The block coefficient correction was a major concern to the drafters of these proposed regulations since the previous regulations merely copied the block coefficient correction of the old International Convention. Most Great Lakes vessels carried a rather large penalty because they were full bodied vessels. It was the consensus at the 1966 International Convention that the full body form actually does not need the same sheer height as a finer ship which pitches more.

The results of the seakeeping study also aided the evaluation of the Joint Technical Committee in regard to the sheer correction. This was the other major penalty which most existing Great Lakes vessels carry because they are constructed as straight deck vessels and, therefore, have a large penalty because of lack of sheer. As indicated above, both the wave research and the calculations have shown that the present sheer is necessary for shorter vessels, but it is not necessary for sheer values to continually expand upwards between 600 feet and 1,000 feet in length. Thus the proposed regulation significantly modifies this major penalty for longer vessels.

The proposed regulations increase the degree of effectiveness of the conditions of assignment and protection of the crew, which are mainly embodied in the requirements for weathertightness of superstructures, hatch coamings, and the upper hull fittings. This notice also proposes that all vessels expecting to sail at the new freeboards must have complete loading information for the master of the vessel, which is a step toward greater safety.

The proposed bow height regulations are based on the International Convention but significantly modified in that the bow height requirement is maximum at 550 feet, and lower than maximum on vessels longer than 550 feet, in accordance with the results of the research and seakeeping projections.

The actual calculation of the freeboards under the proposed regulations is expected to be greatly simplified since the new table of freeboards now includes the correction for block coefficients. Secondly, the length-to-depth correction is also included in the evaluation in the basic freeboard table. The only corrections that must be made to the basic calculation of tabular freeboard under this proposal are the superstructure correction (when it is desired) and the modified sheer correction, and the bow height correction. All other geometric calculations have been dropped or included in the calculation.

The existing seasonal freeboards regulations have very large differences among the summer, intermediate, and winter seasons on the Great Lakes. The investigations of the past few years have determined that while it is still desirable to maintain increased freeboard in the rough weather occurring in the fall of the year, the correction can be significantly modified. Accordingly, those vessels which qualify under these proposed regulations would have somewhat increased draft during the fall and winter seasons.

These regulations have been anticipated for well over 10 years. They have been developed after years of expensive and painstaking research, not only on the ships but also on the water and wave conditions, and after considerable laboratory effort in evaluation of the research. It is believed by the Joint Technical Committee of the United States and Canada that these proposed regulations represent a significant forward step in ship evaluation and ship design.

In this proposal vessels are not formally categorized into "new" and "existing" vessels as in International Load Lines Convention of 1966 because there would be two categories of "existing." Instead the new regulations categorize vessels by date of regulations in form. Thus any vessel which can meet the new regulations can receive a Load Line certificate under the new regulations. Vessels meeting older versions of the regulations will be load lined according to the calculations of the older regulations.

The proposed seasonal dates would apply to all vessels on the Great Lakes including vessels which have been issued

International Load Lines Convention, 1966, certificates.

In addition to the development of this proposal by a joint United States of America/Canada Technical Committee, the final proposal has been subject to administrative and legal review by the Board of Steamship Inspection and the Coast Guard. Both agencies have prepared regulations and have compared them for similar intent.

While the Canadian and U.S. regulations differ in official format, both are alike in all fundamentals. Accordingly, both agencies are preparing to publish these regulations and place them in effect simultaneously so that the U.S. and Canadian vessels that can meet the proposed safety requirements may use these regulations during the 1973 shipping season.

The following amendments to Part 42 would be made to implement the proposed new Part 45:

1. Section 42.03–1 would be amended to clarify the applicability of this section to vessels navigating the Great Lakes.

2. Section 42.03–5(3) and 42.07–1(b) would be amended to change the reference to § 45.9 of proposed Part 45, which would contain the seasonal equivalents for vessels not operating solely on the Great Lakes.

3. Section 42.03–5(c) would be amended to exclude vessels less than 79 feet. The committee recommended establishment of load-line requirements for vessels 79 feet or more in length in the interests of maintaining uniformity within the International Load Line Convention.

4. Section 42.03–30(b)(2) (e) and (f) would be amended to implement the exemption provision proposed in new § 45.15.

5. Section 42.05–40(c) would be amended to designate the dividing line between fresh and salt water at the Victoria Bridge, Montreal.

6. Section 42.07–45(d) and 42.09–15 (e)(1) would be amended to provide a shorter period for an extension endorsement on the Great Lakes load line certificate from 5 to 2 months because of the higher frequency and shorter length of Great Lakes voyages.

7. Section 42.07–45(e) and (f) would be amended to reference proposed § 45.-101, which prescribes the form of the Great Lakes certificates.

In addition to the amendments to Part 42, the Coast Guard proposes to amend Subchapter E of Title 46 of the Code of Federal Regulations by revising Part 45 to read as follows:

PART 45—GREAT LAKES LOAD LINES

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Appendix A Load line certificate form.

AUTHORITY: The provisions of this Part 45 issued under sec. 2, 49 Stat. 888, as amended, sec. 6(b)(1), 80 Stat. 937; 46 U.S.C. 88a, 49 U.S.C. 1655(b)(1); 49 CFR 1.46(b)

Subpart A—General

§ 45.1 Purpose.

This part prescribes requirements for assignment of freeboards, issuance of loadline certificates and marking of loadlines to meet the requirements of the Coastwise Load Line Act, 1935 (46 U.S.C. §§ 88–88g) insofar as it applies to the Great Lakes of North America.

§ 45.3 Definitions.

As used in this part:

(a) "Length (L)" means 96 percent of the total length on a waterline at 85 percent of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that is greater. In ships designed with a rake of keel the waterline on which this length is measured must be parallel to the designed waterline.

(b) "Perpendiculars" means the forward and after perpendiculars at the forward and after ends of the length (L). The forward perpendicular coincides with the foreside of the stem on the waterline on which the length is measured.

(c) "Amidships" means the middle of the length (L).

(d) "Breadth" unless expressly provided otherwise, means the maximum breadth of the ship, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material.

(e) "Moulded Depth" means the vertical distance measured from the top of the keel to the top of the freeboard deck beam at side except that—

(1) In vessels of other than metal construction, the distance is measured from the lower edge of the keel rabbet;

(2) Where the form at the lower part of the midship section is of a hollow character, or where thick garboards are fitted, the distance is measured from the point where the line of the flat of the bottom continued inwards cuts the side of the keel;

(3) In ships having rounded gunwales, this distance is measured to the point of intersection of the moulded lines of the deck and side, the lines extending as though the gunwale were of angular design; and

(4) Where the freeboard deck is stepped and the raised part of the deck extends over the point at which the moulded depth is to be determined, the distance is measured to a line of reference extending from the lower part of the deck along a line parallel with the raised part.

(f) "Depth for Freeboard (D)" means—

(1) Molded depth measured to the upper surface of the deck or stringer plate with no allowance for sheathing; and

(2) In a vessel having a rounded gunwale with a radius greater than 4 percent of the breadth (B) or having topsides of unusual form, the depth for freeboard (D) of a vessel having a midship section with vertical topsides and with the same round of beam and area of topside section equal to that provided by the actual midship section.

(g) "Freeboard" means the distance measured vertically downwards amidships from the upper edge of the deck line to the upper edge of the related load line.

(h) "Freeboard Deck" means, normally, the uppermost complete deck exposed to weather and sea that has permanent means of closing all openings in the weather part thereof and below which all openings in the sides of the ship are fitted with permanent means of watertight closings except that—

(1) In a ship having a discontinuous freeboard deck, the lowest line of the exposed deck and the continuation of that line parallel to the upper part of the deck is the freeboard deck.

(2) At the option of the owner and subject to the approval of the Commandant a lower deck may be designated as the freeboard deck, if it is a complete and permanent deck continuous in a fore and aft direction at least between the machinery space and peak bulkheads and continuous athwartships;

(3) When this lower deck is stepped the lowest line of the deck and the continuation of that line parallel to the upper part of the deck is taken as the freeboard deck.

(i) "Superstructure" means a deck structure on the freeboard deck, extending from side to side of the ship or with the side plating not being inboard of the shell plating more than 4 percent of the breadth (B). A raised quarterdeck is a superstructure.

(j) "Enclosed superstructure" means a superstructure with enclosing bulkheads.

(k) "Height" of a superstructure means the least vertical height measured at side from the top of the superstructure deck beams of the top of the freeboard deck beams.

(l) "Length of a superstructure (S)" means the mean length of the part of the superstructure that lies within the length (L).

(m) "Flush Deck Ship" means a ship that has no superstructure on the freeboard deck.

(n) "Weathertight" means that in any sea conditions water will not penetrate into the ship except under a static head of water.

(o) "Watertight" means designed to withstand a static head of water.

(p) "Exposed positions" means—

(1) Exposed to weather and sea; or

(2) Within a structure so exposed other than an enclosed superstructure.

(q) "Intact bulkhead" with respect to superstructure means a bulkhead with no openings.

(r) "Steel" means steel and materials with which structures can be made equivalent to steel with respect to yield strength, total deflection, flexural life, and resistance to environmental or stress corrosion.

§ 45.5 Seasonal application of loadlines.

For the purposes of the law and regulations prohibiting submergence of load lines (46 U.S.C. 88c; 46 CFR 42.07–10), the fresh water and salt water loadlines marked under this part apply during the following seasons:

(a) Summer loadlines apply April 16 through April 30; and September 16 through September 30.

(b) Midsummer loadlines apply May 1 through September 15.

(c) Intermediate loadlines apply October 1 through October 31; and April 1 through April 15.

(d) Winter loadlines apply November 1 through March 15.

§ 45.9 Seasonal application of loadlines for vessels not marked under this part.

(a) For the purposes of the law and regulations prohibiting submergence of loadlines (46 U.S.C. 88c; 46 CFR 42.07–10) the marks assigned to vessels holding international loadline certificates apply during the following seasons:

(1) Vessels assigned freeboards as "new" vessels under the International Loadline Convention, 1966—

(i) Winter — November 1 through March 31;

(ii) Summer—April 1 through April 30; and October 1 through October 31;

(iii) Tropical—May 1 through September 30;

(2) Vessels assigned freeboards as "existing" vessels under the International Loadline Convention, 1966—

(i) Winter — November 1 through March 31;

(ii) Summer—April 1 through April 30; and October 1 through October 31;

(iii) Tropical—September 16 through September 30;

(iv) Tropical Fresh—May 1 through September 15.

(b) No allowances for lesser freeboards apply under any circumstances.

§ 45.11 Issue of load line certificate.

(a) Any vessel that meets the requirements in Subparts C and D of this part and the survey requirements in §§ 42.09–15 through 42.09–50 of Part 42 of this chapter is entitled to assignment of freeboards and issue of a load line certificate under this part by the Commandant or his authorized representative.

(b) A vessel the keel of which was laid or was at a similar stage of construction before (effective date) that meets the requirements of this part that were in effect before (effective date) and the survey requirements in §§ 42.09–15 through 42.09–50 of Part 42 of this chapter is entitled to the assignment of freeboards calculated under the provisions of this part in effect before (effective date) and to a load line certificate issued under this part by the Commandant or his authorized representative.

§ 45.13 Form of certificate.

The form of a load line certificate issued under this part is specified in Appendix A.

§ 45.15 Exemptions.

(a) The Commandant may exempt a ship from any of the requirements in this part if the Chairman of the Board of Steamship Inspections, Department of Transport, Canada, and the Commandant agree that the sheltered nature or the conditions of that voyage make it unreasonable or impracticable to apply requirements of this part.

(b) The Commandant may exempt a vessel that embodies features of a novel kind from any of the requirements of this part if those requirements might seriously impede research into the development of such features and their incorporation in ships. Any such vessel must comply with the safety requirements that, in the opinion of the Commandant, are adequate for the service for which the vessel is intended and will ensure the overall safety of the vessel. If the Commandant grants an exemption pursuant to this paragraph he communicates the details of the exemption and the reasons therefor.

(c) A vessel that is not normally engaged on voyages to which this part applies but that, in exceptional circumstances, is required to undertake a single such voyage between two specific ports may be exempted by the Commandant from any of the requirements of this part, if the ship complies with safety requirements that, in the opinion of the Commandant, are adequate for the voyage that is to be undertaken by the vessel.

Subpart B—Loadline Marks

§ 45.31 Deck line.

(a) Each vessel must be marked with a deck line on the outer surface of the shell on each side of the vessel with the upper edge of the line passing through the point where the upper surface of the freeboard deck intersects the outer surface of the shell or if the summer freeboard is correspondingly adjusted under § 45.57, the deck line may be placed above or below the freeboard deck. Figure 1 illustrates the deck line marking.

(b) Each deck line must be 12 inches long and 1 inch wide.

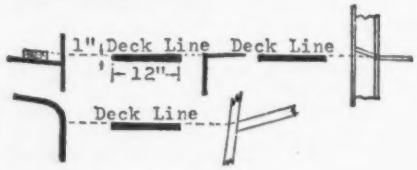


FIGURE 1

§ 45.33 Diamond.

(a) Each vessel must be marked with the diamond mark described in Figure 2 amidships below the deck line on each side with the center of the loadline mark at a distance below the deck line equal to the summer freeboard assigned under this part.

(b) The width of each line in the load line mark must be 1 inch.

§ 45.35 Seasonal loadlines.

Each vessel must have the summer (S), mid-summer (MS), intermediate (I), and winter (W) loadlines for fresh water freeboards calculated under § 45.71 through 75 of this part marked in accordance was § 45.39.

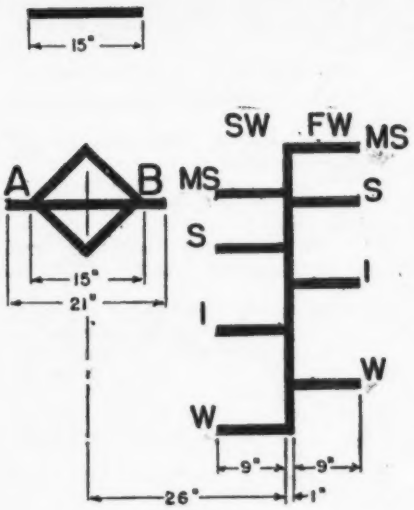


FIGURE 2

§ 45.37 Salt water loadlines.

Each vessel that operates in the salt water of the St. Lawrence River must:

(a) Be marked with the summer (S), mid-summer (MS), intermediate (I) and winter (W) load line marks under § 45.77 of this part for salt water; and

(b) Be marked with the letters "FW" above the fresh water marks and the letters "SW" above the salt water marks as described in Figure 2.

§ 45.39 Marking.

(a) The diamond, lines, and letters must be painted in white or yellow on a dark ground or in black on a light ground and permanently marked on the sides of the vessel.

(b) The upper edge of the line that passes through the center of the diamond must indicate summer freeboard assigned under § 45.53.

(c) Unless otherwise authorized the seasonal load lines must be horizontal lines extending forward of, and at right angles to, a vertical line marked at a distance 26 inches forward of the vertical centerline of the diamond as described in Figure 2.

(d) The salt water loadlines must be horizontal lines extending abaft the vertical line required by paragraph (b) of this section as described in Figure 2.

(e) The upper edge of each seasonal and salt water loadline mark must indicate the minimum freeboard for that mark.

(f) When two freeboards assigned under this part differ by 2 inches or less, the line for the lesser freeboard must be omitted and the line for the greater freeboard must be identified with the seasonal letters for both freeboards.

(g) Seasonal freeboards that are limited by a summer freeboard assigned under § 45.53(c) must not be marked but the identifying letter must be marked adjacent to the summer mark.

(h) The identity of the Authority that assigns the freeboard must be indicated alongside the loadline diamond above the horizontal line that passes through the center of the diamond with two initials approximately 4½ inches high and 3 inches wide.

Subpart C—Freeboards

§ 45.51 Types of ships.

(a) For the purposes of this subpart, a Type A vessel has:

(1) No cargo ports or similar sideshell openings below the freeboard deck;

(2) Only small main deck openings fitted with watertight gasketed hatch covers of steel;

(3) No dimension of a main deck cargo opening greater than 6 feet and the total area not exceeding 18 square feet; and

(4) No more than two main deck cargo openings to a single cargo space.

(b) For the purposes of this subpart a Type B vessel is a vessel that does not meet the requirements in paragraph (a) of this section.

§ 45.53 Summer freeboard.

(a) Except as required in paragraph (c) of this section, the minimum freeboard in summer for a Type A vessel is F in the following formula modified by the corrections in this subpart:

$$F = 10.2 \times P_1 \times D \text{ inches}$$

where P_1 is defined by § 45.55 and D is the depth for freeboard.

(b) Except as required in paragraph (c) of this section, the minimum freeboard in summer for a Type B vessel is F in the formula modified by the corrections in this subpart:

$$F = 12 \times P_1 \times D \text{ inches}$$

where P_1 is defined by § 45.55 and D is the depth for freeboard.

(c) If a minimum freeboard is required for a vessel under this title because of scantling or subdivision requirements greater than the summer freeboard, the summer freeboard and the seasonal freeboards assigned under this subpart must be no less than that minimum freeboard. Seasonal freeboards assigned under § 45.71 through § 45.75 must be calculated on the basis of the summer freeboard calculated under paragraph (a) or (b) of this section.

(d) If a minimum freeboard is requested by the applicant for the load line certificate, that minimum freeboard may be assignd as the summer freeboard and:

(1) The intermediate and winter seasonal freeboards assigned must be calculated under paragraph (a) and (b) of this section; and

(2) The mid-summer seasonal freeboard must be calculated on the basis of the summer freeboard assigned under this paragraph.

§ 45.55 Freeboard coefficient.

(a) For ships 350 feet or more in length (L), the freeboard coefficient is P, in the formula—

$$P = P_1$$

where P is a factor, which is a function of length from Table 1.

(b) For ships less than 350 feet in length (L), the freeboard coefficient is P_1 in the formula—

$$P_1 = P + A(L/D - L/Ds)$$

where P is a factor which is a function of the length from Table 1.

(c) A is a coefficient, which is a function of length (L), from Table 2; L/D is the ratio of the length (L) to the depth for freeboard (D); L/Ds is the ratio of the length (L) to a standard depth (Ds) from Table 3.

TABLE (1)

TABLES OF P VALUES

Length of Ship (feet)	*Value of P*	*Length of Ship (feet)*	*Value of P*
80	0.1100	550	0.2751
90	0.1136	560	0.2762
100	0.1172	570	0.2772
110	0.1208	580	0.2779
120	0.1244	590	0.2785
130	0.1281	600	0.2788
140	0.1318	610	0.2790
150	0.1355	620	0.2790
160	0.1393	630	0.2789
170	0.1430	640	0.2785
180	0.1468	650	0.2779
190	0.1506	660	0.2772
200	0.1545	670	0.2768
210	0.1583	680	0.2760
220	0.1622	690	0.2751
230	0.1661	700	0.2740
240	0.1700	710	0.2728
250	0.1740	720	0.2715
260	0.1780	730	0.2700
270	0.1820	740	0.2684
280	0.1860	750	0.2667
290	0.1900	760	0.2648
300	0.1941	770	0.2628
310	0.1982	780	0.2607
320	0.2023	790	0.2584
330	0.2065	800	0.2560
340	0.2106	810	0.2532
350	0.2148	820	0.2504
360	0.2190	830	0.2476
370	0.2233	840	0.2448
380	0.2275	850	0.2420
390	0.2318	860	0.2392
400	0.2361	870	0.2364
410	0.2400	880	0.2336
420	0.2437	890	0.2308
430	0.2472	900	0.2280
440	0.2506	910	0.2252
450	0.2537	920	0.2224
460	0.2567	930	0.2196
470	0.2595	940	0.2168
480	0.2621	950	0.2140
490	0.2645	960	0.2112
500	0.2667	970	0.2084
510	0.2688	980	0.2056
520	0.2706	990	0.2028
530	0.2723	1000	0.2000
540	0.2738		

TABLE (2)

VALUES OF "A" FOR USE IN THE EXPRESSION

$$P_1 = P + \text{"A"}\ (L/D - L/Ds)$$

Length of Ship (feet)	*Value of "A"*	*Length of Ship (feet)*	*Value of "A"*
80	0.00864	220	0.00234
90	0.00806	230	0.00204
100	0.00750	240	0.00176
110	0.00696	250	0.00150
120	0.00644	260	0.00126
130	0.00594	270	0.00104
140	0.00546	280	0.00084
150	0.00500	290	0.00066
160	0.00456	300	0.00050
170	0.00414	310	0.00036
180	0.00374	320	0.00024
190	0.00336	330	0.00014
200	0.00300	340	0.00006
210	0.00266	350	0.00000

TABLE (3)

VALUES OF L/Ds

Length of Ship (feet)	Value of L/Ds	Length of Ship (feet)	Value of L/Ds
80	6.50000	220	10.21875
90	6.76563	230	10.48438
100	7.03125	240	10.75000
110	7.29688	250	11.01563
120	7.56250	260	11.28125
130	7.82813	270	11.54688
140	8.09375	280	11.81250
150	8.35938	290	12.07813
160	8.62500	300	12.34375
170	8.89063	310	12.60938
180	9.19625	320	12.87500
190	9.42188	330	13.14063
200	9.68750	340	13.40625
210	9.95313	350	13.67188

§ 45.57 Correction: Position of deck line.

(a) Where the depth to the upper edge of the deck line is greater or less than D, the difference between the depths must be added to or deducted from the freeboard.

(b) When the Commandant approves a location for the deck line that is above or below the freeboard deck, the minimum summer freeboard must be corrected by—

(1) Adding the difference between the depth and D if the depth is greater than D; and

(2) Subtracting the difference between the depth and D, if the depth is less than D.

§ 45.58 Correction: Short superstructure.

The minimum freeboard in summer for a Type B vessel that is 79 feet or more but less than 500 feet in length and has enclosed superstructures with an effective length of 25 percent or less of the length of the vessel must be increased by:

$$0.03\ (500-L)\ (0.25-E/L)\ \text{inches}$$

where (L)=length of vessel in feet;
(E)=effective length of superstructure in feet as defined in § 45.59.

§ 45.59 Definitions for superstructure corrections.

For the purpose of §§ 45.58 through 45.61—

(a) The standard height of a superstructure (H_s) other than a raised quarter deck and the standard height of a trunk (H_s) is determined by the formula:

$$Hs=(6.0+L/300)\ \text{feet}$$

(b) The length of superstructure (S) is the length of those parts of the superstructure that lie within the length (L).

(c) The effective length (E) of a trunk is its length in the ratio of its mean breadth to B.

d) The effective length (E) of an enclosed superstrutcure of standard height or greater is its actual length.

(e) Where the height of an enclosed superstructure or trunk is less than the standard height (H_s), the effective length (E) is its length reduced in the ratio of its height to Hs.

(f) The effective length (E) of a raised quarter deck of two-thirds Hs or greater that has no openings in the front bulkhead is its length up to a maximum of 0.6 L.

(g) The effective length (E) of a raised quarter deck of less than two-thirds Hs or that does not have an intact front bulkhead is its length reduced by the ratio of its height to Hs.

(h) Superstructures which are not enclosed have no effective length.

(i) When a lower deck is designated as the freeboard deck, that part of the hull which extends above the freeboard deck is treated as a superstructure so far as concerns the application of the conditions of assignment and the calculation of freeboard.

(j) A bridge or poop is not enclosed unless access is provided whereby the crew may reach accommodations, machinery, or other working spaces inside the superstructure by alternative means that are available at all times when bulkhead openings are closed.

§ 45.61 Correction for superstructures and trunks.

(a) Where the effective length (E) of superstructures and trunks that meet the requirements of Subpart D is 1.0 L, the minimum summer freeboard may be corrected by subtracting one-half H_s.

(b) Where the effective length of superstructures and trunks is less than 1.0 L the minimum summer freeboard may be corrected by subtracting a percentage of one-half of the standard superstructure height (H_s) determined by the formula—

$$\text{Percentage}=E/2L\times(1+E/L)\times 100$$

(c) To be eligible for the correction a trunk must:

(1) Be at least as strong and as stiff as a superstructure;

(2) Have no opening in the freeboard deck in way of the trunk, except small access openings;

(3) Have hatchway coamings and covers that meet § 45.143 through § 45.147;

(4) Provide a permanent working platform fore and aft with guard rails;

(5) Provide fore and aft access between detached trunks and superstructures by permanent gangways;

(6) Be at least 60 percent of the breadth of the ship in way of the trunk; and

(7) Be at least 0.6 L in length, if no superstructure is provided.

§ 45.63 Correction for sheer.

(a) The minimum summer freeboard must be increased by the deficiency, or may be decreased by the excess as limited by § 45.65, of sheer calculated from Table 4, multiplied by—

$$0.75-S/2L$$

where S is the total length of enclosed superstructures. Trunks are not included.

SHEER CALCULATION—TABLE 4

Station	Actual ordinate	S. M.	Product	
After Half:				
AP	1	1		
L/6-AP		3		
L/3-AP		3		
Midship		1		
Sum of Aft Products				
After Standard Sheer .2665L+26.65 [1]				
Difference: Sum-STD			+	Excess/−Deficiency
AFT Sheer: Diff-8				Excess/Deficiency

Station	Actual ordinate	S. M.	Product	
Fwd Half:				
FP		1		
L/6-FP		3		
L/3-FP		3		
Midships		1		
Sum of Fwd Products				
Fwd Standard Sheer .5330L+53.30 [1]				
Difference: Sum-STD			+	Excess/−Deficiency
FWD Sheer: Diff-8				Excess/Deficiency

[1] L in Standard Sheer=L or 500 whichever is less.

Sheer Summation

Aft Sheer +/−		
Fwd Sheer +/−		
Net Sheer +/−		
Mean: Net−2		Excess/Deficiency

§ 45.65 Excess sheer limitations.

The decrease in freeboard allowed in § 45.63 is limited as follows:

(a) In vessels having no enclosed superstructure from 0.1 L abaft amidships to 0.1 L forward of amidships, no decrease is allowed.

(b) In vessels having enclosed superstructures amidships less than 0.1 L before and abaft amidships, the decrease must be reduced by linear interpolation.

(c) If excess sheer exists in the forward half, and the after half is at least 75 percent of standard sheer, the full decrease is allowed. If the after sheer is between 50 percent and 75 percent of standard sheer an intermediate decrease, determined by linear interpolation, is allowed for the excess sheer forward. If the after sheer is 50 percent or less than standard, no decrease is allowed for the excess sheer forward.

(d) Where the actual height of a poop or forecastle at the end ordinate exceeds the standard and a decrease in freeboard for excess sheer is desired, the following formula must be used:

$$s=yL'/3L$$

where s=sheer credit, to be deducted from the deficiency or added to the excess of sheer.

Y=difference between actual and standard height of superstructure at the end ordinate.

L'=means enclosed length of poop or forecastle up to a maximum length of 0.5 L.

This formula provides a curve in the form of a parabola tangent to the actual sheer curve at the freeboard deck and intersecting the end ordinate at a point below the superstructure. The superstructure deck must not be less than standard height above this curve at any point. This curve must be used in determining the sheer profile for forward and after halves of the vessel.

(e) The maximum decrease for excess sheer must be no more than 1½ inches per 100 feet of length.

(f) Where the deck of an enclosed superstructure has at least the same sheer as the exposed freeboard deck, the sheer of the enclosed portion of the freeboard deck cannot be taken into account.

§ 45.67 Sheer measurement.

(a) The sheer is measured from the freeboard deck at side to a line of reference drawn parallel to the keel through the sheer line at amidships;

(b) In ships designed with a rake of keel or designed to trim by the stern, the sheer must be measured in reference to a line drawn through the sheer line at amidships parallel to the design load waterline.

(c) In flush-deck ships and in ships with detached superstructures, the sheer must be measured at the freeboard deck.

(d) In ships with a step or break in the topsides, the sheer must be measured from the equivalent depth amidships.

(e) In ships with a superstructure of standard height that extends over the whole length of the freeboard deck, the sheer must be measured on the superstructure deck. Where the height of superstructure exceeds the standard, the least difference (Z) between the actual and standard heights must be added to each end ordinate. Similarly, the intermediate ordinates at distances of one-sixth L and one-third L from each perpendicular must be increased by 0.444 Z and 0.111 Z, respectively.

§ 45.69 Correction for bow height.

(a) The minimum summer freeboard must be increased by the same amount in inches as any deficiency which may be shown by the following formulas:

(1) For vessels having a length of not less than 79 feet and not greater than 550 feet,

$$0.593\ L\ (1.0-L/1{,}640)\ \text{inches} - \text{actual bow height}$$

(2) For vessels having a length greater than 550 feet,

$$(341.6-0.227\ L)\ \text{inches} - \text{actual bow height}$$

(b) Where the bow height is obtained by sheer, the sheer must extend for at least 15 percent of the length of the vessel measured from the forward perpendicular.

(c) Where the bow height is obtained by a superstructure, the superstructure must be enclosed and extend from the stem to a point at least 0.06 L abaft the forward perpendicular.

(d) Vessels which, to suit exceptional operational requirements, cannot meet the requirements of paragraph (c) may be given special consideration by the Commandant.

(e) The bow height is defined as the vertical distance at the forward perpendicular between the waterline corresponding to the assigned summer freeboard at the designed trim and the top of the exposed deck at side.

§ 45.71 Mid-summer freeboard.

The minimum mid-summer freeboard (fms) is obtained by the formula:

$$fms=f(s)=0.3Ts,$$

where f(s)=summer freeboard,
Ts=distance between top of keel and the summer loadline.

§ 45.73 Winter freeboard.

The minimum winter freeboard (fw) is obtained by the formula:

$$fw=f(s)+Ts\ (200)/L$$

where L=length L but not more than 400 feet.

§ 45.75 Intermediate freeboard.

The minimum intermediate freeboard (fI) is obtained by the formula:

$$fI=f(s)+Ts\ (100)/L$$

where L=length of vessel in feet but not more than 400 feet.

§ 45.77 Salt water freeboard.

The salt water addition to freeboard applicable to each fresh water mark is obtained by the formula:

$$\text{Addition}=\triangle/41T$$

where A=displacement in fresh water, in tons of 2,240 lbs., at the summer load waterline.
T=tons per inch immersion, of 2,240 lbs., in fresh water at the summer load waterline.

Subpart D—Conditions of Assignment

§ 45.101 Purpose.

This subpart prescribes conditions that a vessel must meet to be eligible for assignment of a load line under this part.

§ 45.103 Structural stress and stability.

(a) The nature and stowage of the cargo, ballast, and other variable weights must be such as to make the vessel stable and avoid excessive structural stress.

(b) The vessel must meet all applicable stability and subdivision requirements of this chapter.

§ 45.105 Information supplied to the master.

Unless otherwise authorized by the Commandant, the vessel must have on board, in a form approved by the Commandant, sufficient information:

(a) To enable the master to load and ballast the vessel in a manner that avoids excessive stresses in the vessel's structure; and

(b) To guide the master as to the stability of the ship under varying conditions of service.

§ 45.107 Strength of hull.

The general structural strength of the hull must be sufficient for the draught corresponding to the freeboard assigned and must be approved by the Commandant. Ships built and maintained in conformity with the requirements of a classification society may be recognized by the Commandant as possessing adequate strength.

§ 45.109 Strength of superstructures and deckhouses.

Each superstructure or deckhouse used for accommodations of the crew must be approved by the Commandant with regard to general strength and weather tightness. The Commandant may use the requirements of the Assigning Authority as a guide.

§ 45.111 Strength of bulkheads at ends of superstructures.

Bulkheads at ends of enclosed superstructures must have sufficient strength to withstand impact of boarding seas.

§ 45.113 Access openings in bulkheads at ends of enclosed superstructures.

(a) Access openings in bulkheads at ends of enclosed superstructures must have doors of steel or material as strong as steel that are permanently attached to the bulkhead and framed, stiffened, and fitted so that the bulkhead and door are as strong as the bulkhead and weathertight when closed.

(b) The means for securing the doors weathertight must be permanently attached to the doors or bulkheads and arranged so that the doors can be secured weathertight from both sides of the bulkhead.

(c) Access openings in bulkheads at ends of enclosed superstructures must have sills that are at least 12 inches above the deck.

§ 45.115 Bulwarks and guardrails.

(a) The exposed parts of freeboard and superstructure decks must have guardrails or bulwarks that are at least 36 inches high above the decks.

(b) Guardrails must have at least three courses with no more than a 9-inch opening below the lowest course and no more than 15 inches between other courses. If the sheer strake projection is at least 8 inches above the deck, a guardrail may have two courses with no more than 15 inches between courses.

(c) In way of trunks open rails shall be fitted for at least half the length of the trunk on the weather parts of the freeboard deck.

§ 45.117 Freeing port area: General.

(a) Where bulwarks on the weather portions of freeboard or superstructure decks form wells, the bulwarks must have the area prescribed in this section and sections 119 and 121 for rapidly freeing and draining the decks of water.

(b) Except as required in sections 119 and 121 the minimum freeing port area in square feet on each side of the ship for each well on the freeboard deck and on the raised quarter deck must be at least as great as A in the following formulas:

(1) Where the length of bulwark (l) in the well is 66 feet or less,

$$A=7.6+0.115l.$$

(2) Where (l) exceeds 66 feet

$$A=0.23$$

but need in no case be taken as greater than 0.7 L.

(c) In ships having erections on deck that are open at either or both ends, provision for freeing the space within such erections must be approved by the Commandant.

(d) The lower edges of the freeing ports must be as near the deck as practicable. Two-thirds of the freeing port area required must be provided in the half of the well nearest the lowest point of the sheer curve.

(e) All freeing port openings in the bulwarks must be protected by rails or bars spaced approximately 9 inches. If shutters are fitted to freeing ports, ample clearance must be provided to prevent jamming. Hinges must have pins or bearings of noncorrodible material. If shutters are fitted with securing appliances, these appliances must be of approved construction.

(f) The minimum freeing port area for each well on superstructure decks must be one-half of the area required by paragraph (b) of this section.

§ 45.119 Freeing port area: Changes from standard sheer.

The freeing port area required by § 45.117(b) must be multiplied by the factor in the following Table 5 if the sheer differs from the standard sheer obtained by the formulas in Table 4.

TABLE 5

Freeing port area: sheer correction.

Ratio of sums of actual sheer ord./std. sheer ord.

Ratio of sums of actual sheer ord./std. sheer ord.	*Multiplier for area required by § 45.117(b)*
Greater than:	
1.0	1.0
1.0	1.00
0.9	1.05
0.8	1.10
0.7	1.15
0.6	1.20
0.5	1.25
0.4	1.30
0.3	1.35
0.2	1.40
0.1	1.45
No sheer	1.50

§ 45.121 Freeing port area: Changes for trunks and side coamings.

If a vessel has a trunk and does not meet the requirements of § 45.61 or has continuous or substantially continuous hatchway side coamings between detached superstructures, the minimum area of the freeing port openings must be obtained from the following table:

Breadth of hatchway or trunk in relation to the breadth of ship	*Area of freeing ports in relation to the total area of the bulwarks (percent)*
40 percent or less	20
75 percent or more	10

The area of freeing ports at intermediate breadths must be obtained by linear interpolation.

§ 45.123 Freeing port area: Changes for bulwark height.

(a) For the purposes of freeing port area only, bulwark height is considered standard at 24 inches for ships 240 feet in length and less; and 48 inches for ships 480 feet in length or greater. The standard bulwark height for ships of intermediate length is obtained by direct interpolation.

(b) If the bulwark is more than standard height, the area required by § 45.117 must be increased by 0.04 square feet per foot of length of well for each foot difference in height.

(c) For ships greater than 480 feet in length that have an average bulwark height less than 3 feet, the area required by § 45.117 may be decreased by 0.04 square foot per foot of length for each foot difference in height.

§ 45.125 Crew passageways.

The vessel must have means for protection of the crew from boarding seas such as lifelines, gangways, and underdeck passages to facilitate passing between their quarters and machinery spaces and other spaces essential to the operation of the ship.

§ 45.127 Position of structures, openings, and fittings.

For the purposes of this port:

(a) "Position 1" means in an exposed position on—

(1) The freeboard deck or a raised quarter deck;

(2) A superstructure deck or a trunk deck and forward of a point one-fourth L from the forward perpendicular; or

(3) A trunk deck whose height is other than a raised quarterdeck, exists; or less than Hs, where the trunk deck is other than a raised quarterdeck.

(b) "Position 2" means—

(1) On a superstructure deck aft of a point one-fourth L abaft the forward perpendicular; or

(2) On a superstructure and trunk combination, that is Hs in height, aft of a point one-fourth L abaft the forward perpendicular.

§ 45.129 Hull fittings: General.

Hull fittings must be securely mounted in the hull so as to avoid increases in hull stresses and must be protected from local damage caused by movement of equipment or cargo.

§ 45.131 Ventilators.

(a) Ventilators passing through superstructures other than enclosed superstructures must have coamings of steel or equivalent material at the freeboard deck.

(b) Ventilators in position 1 must have coamings at least 30 inches above the deck and ventilators in position 2 must have coamings at least 24 inches above the deck. In other exposed positions, the Commandant may also require coamings.

(c) Ventilators in position 1 or 2 of spaces below freeboard decks or decks of enclosed superstructures or trunks must have coamings of steel permanently connected to the deck and any ventilator coaming that is more than 36 inches high must be specially supported.

(d) Except as provided in paragraph (e) of this section ventilator openings must have weathertight closing appliances that are permanently attached or, where approved by the Commandant, conveniently stowed near the ventilators to which they are to be fitted.

(e) Ventilators in position 1, the coamings of which extend to more than 12.5 feet above the deck, and in position 2, the coamings of which extend to more than 6 feet above the deck, need not have closing appliances unless specifically required by the Commandant.

§ 45.133 Air pipes.

(a) Where an air pipe to any tank extends above the freeboard or superstructure deck:

(1) The exposed part of the air pipe must be made of steel, property installed, and of sufficient thickness to avoid breaking from corrosion or fatigue;

(2) The air pipe must have a permanently attached means of closing its opening; and

(3) The height from the deck to any point where water may enter the air pipe must be at least 30 inches above the freeboard deck, 24 inches above raised quarter decks, and 12 inches above other superstructure decks.

(b) If the height required in paragraph (a) interferes with working the ship, the Commandant may approve a lower height after considering the closing arrangements.

§ 45.135 Hull openings at or below freeboard deck.

Closures for hull openings at or below the freeboard deck must be as strong as the structure to which they are attached and must be watertight.

§ 45.137 Cargo ports.

(a) Unless otherwise authorized by the Commandant, the lower edge of any opening for cargo, personnel, machinery access or similar opening in the side of a ship must be above a line that is drawn parallel to the freeboard deck at side and has as its lowest point the upper edge of the uppermost load line.

(b) The number of cargo ports in the sides of a ship must be:

(1) No more than the minimum necessary for working the ship; and

(2) Approved by the Commandant.

§ 45.139 Side scuttles.

The sill of each side scuttle must be above a line that is drawn parallel to the freeboard deck at side having its lowest point 2.5 percent of the breadth or 20 inches above the summer load waterline, whichever is higher.

§ 45.141 Manholes and flush scuttles.

Manholes and flush scuttles in position 1 or 2 or within any superstructure other than an enclosed superstructure must have permanently attached covers, unless the cover is secured by closely spaced bolts around its entire perimeter.

§ 45.143 Hull openings above freeboard deck.

Closures for openings above the freeboard deck must be as strong as the

structure to which they are attached and must be weathertight.

§ 45.145 Hatchway covers.

(a) Hatchways in position 1 and 2 must have weathertight hatch covers with gaskets and clamping devices.

(b) The maximum ultimate strength of the hatchway cover material must be at least 4.25 times the maximum stress of the material calculated with the following assumed loads:

(1) For ships 350 feet or more in length, at least 250 pounds per square foot in position 1 and 200 pounds per square foot in position 2.

(2) For ships less than 350 feet in length, at least AL in the following formula:

(i) Position 1:

$$AL=150+C$$

where $C=50\ (L-79)/271$

(ii) Position 2:

$$AL=200+C$$

(c) Hatchway covers must be so designed as to limit the deflection to not more than 0.0028 times the span under the loads described in paragraph (b) and the thickness of mild steel plating forming the tops of covers must be at least 1 percent of the spacing of stiffeners or 0.24 inches, whichever is greater.

§ 45.147 Hatchway coamings.

(a) Except where the Commandant determines that the safety of the vessel will not be impaired in any sea condition, each hatchway must have a coaming that is at least—

(1) 18 inches in position 1; and

(2) 12 inches in position 2.

(b) Each hatchway coaming required by this section must be made of steel.

§ 45.149 Machinery space openings.

(a) Machinery space opening in position 1 or 2 must be framed and enclosed by steel casings, and where the casings are not protected by other structures that meet the requirements of § 45.109, their strength must be approved by the Commandant.

(b) Access openings in casings required by paragraph (a) must have doors complying with the requirements of § 45.113. Other openings in such casings shall be fitted with equivalent covers, permanently attached.

(c) Except as provided in paragraph (d), coamings of any funnel or machinery space ventilator that must be kept open for the essential operations of the ship must—

(1) In position 1, extend at least 12.5 feet above the deck; and

(2) In position 2, extend at least 6 feet above the deck.

(d) The Commandant may approve a lesser height for protected coamings.

(e) Coamings of any fiddley or skylight over a machinery space opening in the freeboard or superstructure deck must have covers of steel permanently attached and capable of being secured weathertight.

§ 45.151 Other openings.

Each opening other than hatchways, machinery space openings, manholes, or flush scuttles:

(a) In freeboard decks, must be protected by an enclosed superstructure or by a deckhouse or companionway that is equal in strength and weathertightness to an enclosed superstructure; or

(b) In exposed superstructure decks or in the top of a deckhouse on freeboard decks that give access to a space below the freeboard deck or a space within an enclosed superstructure, must be protected by a deckhouse or companionway.

§ 45.153 Through-hull piping: General.

(a) All through-hull pipes required by this subpart must be made of steel or material equivalent in strength and fatigue resistance approved by the Commandant.

(b) All valves used as shell fittings and all shell fittings on which such valves are mounted must be made of steel, or bronze or other ductile material approved by the Commandant.

§ 45.155 Inlets and discharge piping: Valves.

(a) Except as provided in paragraph (d) and (e), each pipe that discharges overboard through the hull of the ship must have—

(1) An automatic nonreturn valve with a positive means for closing; or

(2) Two automatic nonreturn valves with the inboard valve accessible for examination in service.

(b) The means for operating a valve described by paragraph (a)(1) must be readily accessible and have indicators that show when the valve is not closed.

(c) If the pipe discharges from a space that is not manned or does not have continuous bilge water monitoring, a valve described in paragraph (a)(1) must be operable above the freeboard deck.

(d) Each pipe that discharges from a space within an enclosed superstructure or deckhouse may have at least one accessible automatic nonreturn valve if the space is regularly visited by the crew.

(e) Through-hull piping systems in machinery spaces may have valves with positive means for closing at the shell if the controls are readily accessible and have indicators showing when the valves are not closed (nonreturn valves are not required).

§ 45.157 Scuppers and gravity drains.

Scuppers and gravity deck drains from spaces above the freeboard deck that penetrate the shell below a line 24 inches (or 0.05 B) above the summer load line must have an automatic nonreturn valve, unless the piping is properly installed steel pipe of sufficient thickness to avoid breaking from corrosion or fatigue.

§ 45.159 Special conditions of assignment for type A vessels.

The lower freeboards allowed for type A vessels allow water on deck for greater percentages of time. Therefore the following additional requirements must be met to qualify for type A freeboards:

(a) Machinery casings must be protected by an enclosed superstructure or deckhouse unless intact bulkheads are used on all sides on the freeboard deck.

(b) Exposed machinery casings may be fitted with weathertight doors providing they lead to a space or passageway as strong as an enclosed superstructure from which a second interior weathertight door is provided for access to the engine room.

(c) Hatchways on the exposed freeboard or forecastle decks must be provided with watertight covers of steel.

(d) Unless a separate fore and aft access is provided below the freeboard deck, a permanent fore and aft gangway must be fitted at the superstructure deck level between poop and all other deckhouses used in the essential operation of the vessel.

(e) Type A vessels must be fitted with open rails for at least half the length of the exposed parts of the weather deck. Where superstructures are connected by trunks, open rails must be fitted for the whole length of the exposed parts of the freeboard deck.

Appendix A—Load line certificate form.

GREAT LAKES LOAD LINE CERTIFICATE

No. ------

Issued under the authority of the Commandant, U.S. Coast Guard, United States of America, under the provisions of the Act of August 27, 1935, as amended to establish load lines on the Great Lakes of North America and the Load Line regulations in force on ---------, 19--. By ----------; duly authorized by the Commandant to assign said load line certificate.

Ship---------- Length (LBP) ---------
Certificate No----- Gross tonnage---------
Official No--------- Port of registry---------

Type of Ship: TYPE "A"
TYPE "B"
TYPE "B" with increased freeboard

FREEBOARD FROM DECK LINE

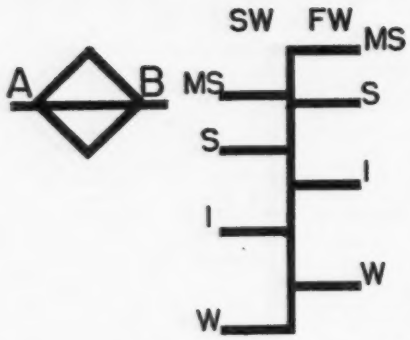
Midsummer ----------	MS
Summer ----------	S
Intermediate ----------	I
Winter ----------	W

LOAD LINE

---------- above S
Upper edge of line through center of diamond.
---------- below S
---------- below S

Increase for salt water for all freeboards ---- inches.

The upper edge of the deck line from which these freeboards are measured is ---- inches above the top of the ---------- deck at side.



The upper edge of the deck line from which these freeboards are measured is ____ inches above the top of the ---------- deck at side.

This is to certify that this ship has been surveyed and the freeboards and load lines shown above have been found to be correctly marked upon the vessel in manner and location as provided by the load line regulations of the Commandant, U.S. Coast Guard, applicable to the Great Lakes.

This certificate[1] remains in force until ---------- Issued at ---------- on the ____ day of ---------- 19___. (Here follows the signature, seal, if any, and the name of the authority issuing the certificate.)

NOTES

(1) In accordance with the Great Lakes Load Line regulations the diamond and lines must be permanently marked by center punch marks or cutting. The "MS" load line shall be assigned only to those particular vessels that qualify under the regulations.

(2) The "SW" marks need only be assigned to Great Lakes vessels loading in salt water of the St. Lawrence River west of a straight line from Cap de Rosiers to West Point Anticosti Island, and west of a line along longitude 63 degrees west from Anticosti Island to the north shore of the St. Lawrence River. In such cases these limits shall be indicated on the certificate.

(3) The load line assignment given by this certificate necessarily assumes that the nature and stowage of cargo, ballast, etc., are such as to secure sufficient stability for the vessel. Accordingly, it is the owner's responsibility to furnish the Master of the vessel with stability information and instructions when this is necessary to maintenance of sufficient stability.

(On the reverse side of the load line certificate, or on a separate sheet attached and forming part of the certificate, provision is to be made for annual inspection and renewal endorsements.)

[1] Upon the expiration of the certificate, renewal must be obtained as provided by the Great Lakes Load Line Regulations and the certificate so endorsed.

(Sec. 2, 45 Stat. 1493, as amended, sec. 2, 49 Stat. 888, as amended, sec. 6(b)(1), 80 Stat. 937; 46 U.S.C. 85a, 88a, 49 U.S.C. 1655(b)(1); 49 CFR 1.46(b))

Dated: March 15, 1973.

W. F. REA, III,
Rear Admiral, U.S. Coast Guard, Chief, Office of Merchant Marine Safety.

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